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ABSTRACT

Economic competitiveness is today's most critical issue. Keeping the United States competitive in the world marketplace means the difference between a rising standard of living for everyone and the disappearance of what is taken for granted as a way of life. Developing human capital is the route toward successful competition, as some examples show. Successful U.S. companies gain a competitive edge by (1) developing a global perspective; (2) transforming organizations through leadership; (3) fostering innovation; (4) collaborating in nontraditional alliances; (5) serving the customer well; (6) producing more with less; (7) integrating technology and human resources; and (8) continually training and developing employees. The American Society for Training and Development feels a special responsibility in calling for action on competitiveness because it knows that corporate learning programs make companies more competitive. Business leaders, policymakers, and noncorporate educators must also support this goal. Several key steps must be taken to produce results: employers must use training and development to achieve business goals and train for an adaptive work force; educators must increase their connections with employers; and government policies must support training and investment for the development of a more competitive work force. (58 references.) (KC)

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Gaining the Competitive Edge

A competent, motivated workforce is the fundamental competitive advantage of American business.

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AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT

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Gaining the Competitive Edge

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Executive Summary

People: The Fundamental Competitive Advantage

Economic competitiveness is today's most critical issue. Beneath that flat statement lies a harsh reality. Keeping America competitive in the world marketplace means the difference between a rising standard of living for everyone and the disappearance of what we take for granted as a way of life.

All competitive companies have a common ground. They invest in their human capital and develop it strategically. They build competitiveness out of the knowledge, skill, and effort of people. With training and development, they link people's performance and commitment to a common vision of what the company intends to be.

Developing human capital as a competitive advantage is more than a theory. This paper shows, with some real examples, how that investment is played out successfully by U.S. companies through these specific strategies:

- developing a global perspective
- transforming organizations through leadership
- fostering innovation
- collaborating in non-traditional alliances
- serving the customer with quality
- producing more with less
- integrating technology and human resources
- continually training and developing employees.

Game Plan for Action

Renewing America's competitiveness is a huge game for many players, yet many still sit on the sidelines hoping that the effort of winning will fall on someone else. But U.S. competitiveness will not be restored by a nation of bystanders.

The American Society for Training and Development, as the representative of those who train, educate, and develop the U.S. workforce, feels a special responsibility in calling for action on competitiveness. We know that corporate learning programs make companies more competitive. We know that companies that put money and top-level support behind training are among the country's best performers. And we know that training is the tool of choice for giving new life to companies in competitive trouble.

But developing the workforce into a competitive advantage is not just the responsibility of corporate educators. Business leaders, policy makers, and non-corporate educators also must support this goal. We challenge them to join us in making America competitive and in the higher goal of striving together for a rising world standard of living.

To be sure, there is no single solution to the competitiveness challenge, but there are several key steps that, if taken collectively and consistently, will produce results. Our game plan for action is a starting point.

Employers must use training and employee development to achieve strategic business goals; search out and use the state-of-the-art in training and development; train for an adaptable workforce that can make the most of change and manage it for competitive advantage; and invest 2% of payroll in training and development.

— **Educators** must: increase their connections with employers to help improve work-related learning; hire the best qualified teachers, raise teachers' salaries, and measure the learning that results from their work; link the teaching of academic subjects to practical applications; and help prepare workers for the 10 million new jobs that will be created by the year 2000 and that will require more than basic skills.

— **U.S. macroeconomic policy** must support long-term competitiveness. The first crucial step is to reduce the federal budget deficit and free more money for investment in the economy and the development of a more competitive workforce.

— **Federal, state and local governments** must support a strong link between employers, vocational educators, and public job trainers. Resources should go to the customer—the employer and the trainee—rather than to the public suppliers of training. Employers, including small and medium-size companies, must have incentives to invest in training and development.

— **Public job training** must emphasize career counseling and job-search assistance because the best training program is a job.

— **Federal, state, and local budget policies** must support long-term public investment in human capital. There must be quality pre-school education for every disadvantaged three- and four-year-old. There must be substantial funding increases for training, education, and employment. And the disadvantaged must be encouraged, through income tax credits and other measures, to gain work experience.

The Wake-Up Call

"Competitiveness is the degree to which a nation, under free and fair market conditions, produces goods and services that meet the test of international markets while simultaneously maintaining and expanding the real incomes of its citizens."

The Council on Competitiveness

re we meeting the test of international markets while boosting real income? By this and by almost any self-imposed standard, the U.S. is not competitive. Wages, incomes, profits, productivity, trade, foreign debt, and technology are just some of the yardsticks by which we measure competitiveness and find it wanting compared to other nations and to our own past performance.

We hear almost daily that America has lost its competitive edge in the global marketplace. We're told that our output as a nation is dwindling while our debts are growing dangerously large. But in truth, for most people, competitiveness seems a hollow issue. Its effects are too remote.

It's easy to believe there's no problem. The U.S. share of world manufacturing and gross national product has been declining since 1945 but so gradually as to alarm almost no one. Why worry, we reason. This country is far richer absolutely than it was in 1945 and most citizens are better off in absolute terms.

But it is time to pay serious attention. In the last six years our economic foundation has begun to weaken dangerously. Our growth rate has slowed down to average only 2.5% since 1980. Spending has grown so much faster, especially for imports, that by 1986 the U.S. was consuming almost $150 billion more than it produced. In just five years we crossed the line from a $17 billion trade surplus in 1980 to a $139 billion deficit in 1986. And the national debt is more than $2 trillion.

Experts estimate that servicing the national debt could consume about one percentage point of a year's production growth. If that growth amounted to only 2.5%, as it has for the past several years, that leaves a gain of only 1.5%. The difference would come out of our standard of living.

What does that mean? If slow growth is not reversed, Americans will become poorer and the U.S. standard of living will sink. Many of our personal and national goals will suddenly be too

expensive. It may mean a delay in buying a home, getting married, and starting a family. It could jeopardize our children's chances to go to college, get a good job, or start a business. For the country it could mean the end of plans for a clean environment or care for the poor and elderly.

Competitiveness is not just about somebody else's company trying to get a bigger piece of a market. Ultimately it's about the quality of our lives, because the true measure of any country's competitiveness is not its trade balance but its standard of living.

The People Angle

Some see the solution to the competitiveness problem as a question of deficits and policies. We agree that these macroeconomic conditions create opportunity, and sometimes advantage, in a global economy. They make it possible to increase savings, to increase investments, to increase productivity, and thereby to increase competitiveness.

But we think the best place to fix competitiveness is where work happens. That is why this paper looks at successful companies and the strategies they use to create a competitive edge through people.

What's Happened to U.S. Growth?

ECONOMIC GROWTH
Real GNP, the output of goods and services, averaged 4% in the 1950s and 60s, 2.8% in the 70s, and 2.5% in the 80s. Spending has grown so much faster than GNP that by 1986 the U.S. was consuming almost $150 billion more than it produced.

PRODUCTIVITY
U.S. productivity, stuck at about 1%, has been last among the major industrial nations for many years. In 1940, the U.S. portion of world output was 50%. Today it is 23%.

HOME OWNERSHIP
For the first time since the 1930s the percentage of Americans who own homes has been dropping. Home prices rose 108% between 1976 and 1986 while median family income rose only 97%.

EARNING POWER
Real income has not grown for the average American worker since 1973. Wages have increased, but because of inflation, purchasing power has not improved. We have been forced to maintain our standard of living by putting our spouses and children to work and recently by increasing private borrowing.

DEBT
The U.S. went from a trade surplus of $17 billion in 1980 to a deficit of $136 billion in 1986. The national debt is more than $2 trillion. Interest alone amounts to 1% of current GNP growth.

CORPORATE PROFITS
Growth in profits for the Standard and Poor's 500 has averaged just 0.7% for the past five years. Rates of return in manufacturing are as low now as they were in the 1982 recession.

How Companies Use Human Capital to be Competitive

"Organizations don't do things. People do."

D. Quinn Mills,
The New Competitors

"Successful economies begin not with government but with people. All institutions are in the end no better than the people who design and operate them."

Lester Thurow,
The Management Challenge

Competitive companies invest in their human capital and develop it strategically. They build competitiveness out of knowledge, skill, and effort. With training and development, they link performance and commitment to a common vision of what the company intends to be.

Using human capital as a competitive advantage is more than a theory. This paper shows, with some real examples singled out by a panel of top-level training experts, how that investment is played out by successful U.S. companies.

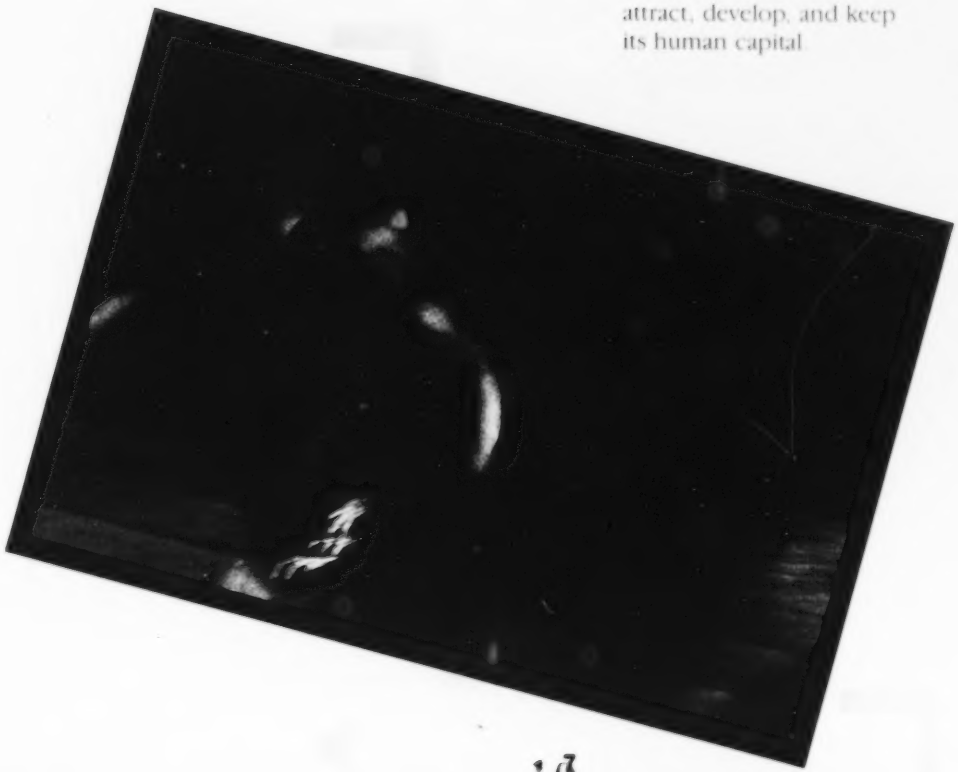
A corporation will be competitive if it can do at least these four things:

- be profitable enough to maintain investors' confidence and thus have access to capital;
- maintain the confidence and loyalty of its customers and markets;
- change continually in order to improve; and
- attract, develop, and keep its human capital.

How do human resource development strategies contribute to these four outcomes? In broad terms, human resource systems—selection, appraisal, reward, and development—operate as outer controls and inner incentives to foster corporate goals. Success in translating human effort into corporate goals lies in treating organizations as learning systems as well as production systems.

But precisely how does investment in corporate learning pay off in the ability to make a profit, serve customers, and change to keep ahead? By linking the performance of the workforce to these competitive capabilities:

- developing a global perspective
- transforming the organization through leadership
- fostering innovation
- collaborating in non-traditional alliances
- serving the customer with quality
- producing more with less
- integrating technology and human resources
- training and developing employees continually.



Developing a Global Perspective

"The best companies view their strategies in global terms"

Michael Porter,
Across the Board, September, 1987

Competitiveness in the global economy depends on a country's ability to compete successfully against others for tax revenues, markets, and jobs. A global company is one which makes substantial exports or foreign investments based on skills and expertise created in the home country. And a company may operate only at home and still need a global perspective because in economic and financial terms, global trading and investment have created a one-world marketplace.

Giving companies the ability to think globally and act locally is an enormous educational task. The global outlook must come from the top but be embodied by every employee. Training is the primary tool for building a global vision and for teaching specific content about local operating conditions.

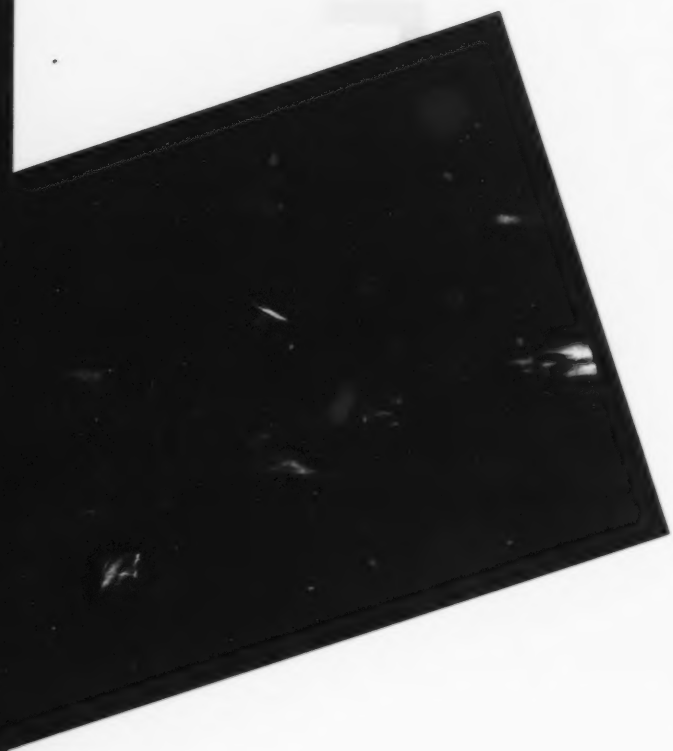
Global companies rely on human resource strategies to recruit, select, and train the people most likely to take a more-than-local view. And they evaluate managers on their ability to balance two demands: supporting a central authority while customizing work units, products, and relationships with suppliers to fit local conditions.

Emhart Corporation

Emhart makes and markets worldwide a line of hardware and machinery. Deciding that their future growth would be outside the United States, they undertook an executive development program on the theme of global competitiveness. Its objectives were to help the transition from domestic company to global competitor; to build a global business perspective; to identify factors critical to global success; to assess their own competitive position; and to build working relationships across decentralized businesses.

The training covered topics such as the world in the year 2000, the dynamics of global trade, operations in a global business, global marketing, manufacturing, sourcing and design, and success factors of a global competitor. A second series of courses focused on business opportunities in Asia.

Emhart's Performance in 1987
Share Price: 20¼
Range: 26⅝-15½
P/E Ratio: 13
Dividend: $.80
Revenue: +19% over 1986
Source: Standard and Poor's Corporation Reports



Transforming Through Leadership

"We realized that to be a world class competitor we had to challenge everything we had done in the past."

Paul A. Allaire,
President, Xerox Corporation

"The changes necessary touch the organization from top to bottom: everyone from the CEO to workers on the shop floor."

D. Quinn Mills,
The New Competitors

merican manufacturing has been so slow to react to foreign competition that for many companies the ability to change is a survival issue rather than a competitive one. In non-manufacturing and other kinds of companies too, managers and leaders have no choice but to change the way they do business. So deep and wide are some of these efforts, especially in large, established companies, that they are more truly called transformations.

The most successful transformations, experts agree, have leaders dedicated to creating what amounts to a new company out of the old. "Transformational leaders," to use a phrase of University of Michigan professor Noel Tichy, are able to clarify a vision of their organization, streamline its core business processes, and rebuild its culture so that people embody the corporate strategies.

In such companies training plays a vital strategic role. It connects people to the goal of changing the organization. Training is the vehicle for learning to become the "new" company which will succeed only if the quality of leadership is picked up and exercised by everyone.

General Electric

Jack Welch, CEO of General Electric, is a transformational leader. He led his company through five years of dramatic changes, moving from manufacturing into high technology and services, doubling the investment in plant and equipment, acquiring 70 new businesses and shedding 190, and cutting the GE workforce by 130,000 people. But Welch believes that these activities are not enough to renew the organization. There also must be strong leadership to support the "soft issues of values, culture, vision, style, and innovation. Without them the organization will be drained, lacking the will to renew itself, and unable to adapt to a changing environment."

GE uses its Crotonville Leadership Development Institute to make Welch's transformational vision a reality. It is a giant workshop for transformation. Its core development sequence targets all the transition points for everyone from the newly-hired fresh from college to the top officers. New managers, for instance, spend a mandatory week at Crotonville learning the corporate culture along with management skills. Mid- and upper-level managers can spend up to a month in developmental programs.

Welch brought human resource expert Noel Tichy to GE to build the Crotonville strategy and develop and implement it. Welch continues to support the role of development in the transformation of GE by lecturing regularly at Crotonville.

GE's Performance in 1987
Sales $39.31 billion: +12% over 1986
Revenue $40.5 billion: +12% over 1986
Net earnings $2.9 billion: +17% over 1986
Earnings per share $3.20: +17% over 1986
Source: General Electric

Fostering Innovation

"Only three things are critical to business success—innovation, productivity, and total quality. Why? Because they're not programs imposed by management. They're demands straight from the customer."

Allen F. Jacobsen,
Chief Executive Officer, 3M Company

nnovation, that highly prized attribute that seems to disappear once success is established, is nurtured deliberately by companies that want to remain competitive. They prize innovative thinking and develop it through specific strategic measures.

The pursuit of innovation commonly takes one or more of these forms: a flexible culture that tolerates, encourages, and rewards risk; employee involvement in management; plenty of access to information; the social integration of employees; and a link between innovation and corporate strategies.

Maytag estimates that 20% of its productivity gains come from worker ideas. Ore-Ida, the frozen potato producer, runs a Fellows Program that acts as a channel around the bureaucracy for good ideas. In one year the program uncovered $1 million worth of cost savings.

Minnesota Mining and Manufacturing

3M managers take a number of specific actions to encourage the creative process.

- Managers cut down on control by keeping operational units small and entrepreneurial.
- R&D people may spend up to 15% of their time "doing their own thing." Senior managers play a buffer role to protect subordinates during the trial-and-error process.
- Managers force interaction among disciplines and divisions. A Technical Forum, composed of technical people from all disciplines, serves as an information exchange and access point.
- Managers are required to sponsor fledgling ideas and projects. Division managers have discretionary power to finance new ventures.

Innovation is rewarded in several concrete ways. "Earned freedom" gives successful innovators progressively more freedom to pursue what interests them. In addition to career paths for managers and professionals, a "venture" path compensates and promotes on the basis of success with risky projects.

3M's Performance in 1987
Share Price: 63
Range: 83½-45
P/E Ratio: 16
Dividend: $1.86
Sales (as of 9/87): +8.7% over 1986
Net income (as of 9/87) +18% over 1986
Source: Standard and Poor's Corporation Reports

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Collaborating in Non-Traditional Alliances

"A company's competitive situation no longer depends on itself alone but on the quality of the alliances it's able to form."

Bruno Lamborghini,
Economics Director, Olivetti Corporation

"American companies have not yet comprehended that in order for our economy to thrive, there will have to be a revolution in how we relate to each other as people, co-workers, and customers."

Paul Hawken,
Growing a Business, 1988

One meaning of the word "compete" is to seek and strive together for the same thing. Challenged by common problems, many sectors of American business are forming new alliances unimagined only a decade ago.

The best strategic alliances serve a narrow purpose and are built around something concrete such as a product, a country, a technology, or a problem. Strategic alliances work best when the partners' management style, motivation, and commitment match well. Corning Glass, which netted over half its 1985 income of $133.3 million from joint ventures, is involved in almost two dozen of them. Corning looks for partners with compatible cultures and values.

Training and development strategies play an important role in getting agreement from the partners in advance on how business will be done. They also come into play in blending the partners' cultures, and following up on the effectiveness of a joint venture. Building and sustaining commitment from both sides can be a major training effort.

Other groups searching their common boundaries for mutually profitable alliances are company and customer, management and labor, educators and employers, and manufacturers and distributors. In supply technology, for example, in a strategy known as "reverse marketing," buyers seek a long-term relationship with a few key suppliers, usually for the purpose of controlling quality. Often the suppliers and the core workforce need or provide the same training.

Chaparral Steel Corporation

Treating people as an investment rather than a disposable unit has paid off for Chaparral Steel Company, a minimill that specializes in making steel rods. While shutdowns, layoffs, and bankruptcies were plaguing other parts of the steel industry, Chaparral made an $8.9 million profit in 1986.

Chaparral has followed a participative management philosophy since its founding in 1973. The plant is not unionized. The company hired 20 foremen who then took charge of hiring all the production workers, most of whom were cattle ranchers from surrounding Texas towns. Intensive training prepared the workers to help build the plant, install and assemble equipment, and even to write safety and operations manuals.

There are only four levels of management at Chaparral, and promotions depend on performance and not longevity. All employees are salaried and there are no time clocks in the factory. There are no layoffs either.

Instead of laying off employees when improved productivity drove down the need for workers, Chaparral executives identified people with construction experience and transferred them to jobs building a new mill. Breaking down barriers between job classifications is a Chaparral trademark. Quality control and sales are everyone's jobs. When a customer complains, it is production workers who investigate. The exchange of information and team spirit that results from extensive cross-utilization of employees is often cited as a mainstay of Chaparral's success.

Serving the Customer with Quality

"We talked about the importance of training for years, but until we instituted comprehensive and mandatory programs, our efforts (to improve quality) never matched our intentions."

James Houghton, Chairman,
Corning Glass Works

"Only those who become attached to their customers, figuratively and literally, and who move most aggressively to create new markets—for fast-growing and mature products alike—will survive."

Tom Peters,
Thriving on Chaos

Courting customers with quality products and services is one of the strongest trends in business today. Many would say it is the survival issue of the 80s. A 1987 Gallup poll of Fortune 1000 executives ranked it as their top concern. When asked what would improve quality, 85% mentioned better employee motivation and a change in corporate culture so that top management emphasized quality.

What is quality? Here is Peter Drucker's definition. "Quality in a product or service is not what the supplier puts in. It is what the customer gets out and is willing to pay for. . . .Customers pay only for what is of use to them and gives them value. Nothing else constitutes quality."

Quality-oriented companies are known for their ability to connect the whole organization to the customer. The pursuit of quality comes from the top down, it is systematic, it is measured, it is rewarded, and it involves everyone. Customer-focused companies recruit, organize, train, and reward people on the basis of their orientation to the customer. And when they train, they include all levels of the organization as well as their customers, suppliers, and distributors.

Corning Glass Works has been emphasizing quality as a corporate strategy since 1984. Its 28,000 employees have been trained in the basics of what the company expects—"understanding the customer's requirements and meeting them 100% of the time." The quality improvement system also includes training in communications, group dynamics, problem solving, and statistical analysis.

Challenged for market leadership in the 1980s by the Japanese, Hewlett-Packard, the computer and electronics firm, undertook a major quality improvement program. The first step was to awaken the entire company to a dramatic challenge: achieve a tenfold reduction in the field failure rate of products over a ten-year period. In a short time more than a thousand quality teams were actively working toward the goal. The most successful had these characteristics in common: they were fully integrated into their group's business strategy, they operated where continuous improvement was a goal, they were close to management, they were provided training in problem solving and team building, and they were encouraged to use these new skills. By the end of the first year of the quality program, the reliability of the HP 3000 computer had improved 100%. Six years into the program, Hewlett-Packard's field failure rates were decreasing at more than 20% annually.

Listening to employees on the subject of how to improve quality can net impressive savings. Employee ideas contributed to a 60% reduction in scrap and rework at Harley-Davidson; Westinghouse's semiconductor division cut customer returns by 68% for a saving of $600,000; AT&T saved $54 million in just 60 days by eliminating errors in service documents.

Milliken & Company, a textile manufacturer, uses the added-value approach to make a return on investment of 50% on an unlikely product—the humble rag or "shop towel." Milliken turned rags into riches by adding value to the product in the eyes of the customer—the industrial laundries that buy the towels and then rent them to users. Milliken provides training to the laundries on selling, quality improvement, and participatory management.

Ford Motor Company

Ford typifies the do-or-die efforts of U.S. manufacturing to regain a competitive edge. In the early 80s Ford made significant changes in its training and education policies to support the renovation of its Dearborn plant and the introduction of new technology. After making quality its number one goal, and supporting that goal with even more training, Ford's profits jumped by 40% in 1987.

Typical of Ford's dramatic turnaround, based on employee involvement and product quality training, is the case of its transmission plant in Batavia, Ohio. Engaging their rival, Mazda, in a battle for quality, they saved themselves from shutdown. The heart of their plan was a teamwork approach to labor-management issues, the use of statistical process controls, and a customer-oriented mentality throughout the plant.

Developing teamwork and communication in a blue-collar workforce was a huge training challenge, as was the introduction of SPC, a method of using statistics to monitor manufacturing quality. But once the work teams were in place it took only six months to manufacture parts more cheaply than the Japanese workers at Mazda. In terms of warranty repairs and customer satisfaction, as measured by outside consulting groups, the Batavia transaxles are now better than those made by Mazda.

Thirty-six employee involvement groups operate at Batavia. Training programs keep workers current with new equipment and technology. As one formerly skeptical worker put it, "If it weren't for SPC, I wouldn't have a job."

Ford's Performance in 1987
Revenue: $71.6 billion, up 14% from 1986
Profit: $4.6 billion, up 40% from 1986
Earnings per share: $9.05, up $2.89 from 1986
Source: Ford Motor Company

Producing More with Less

"Human resource development is the primary lever for improving the nation's overall economic performance and productivity."

C. Jackson Grayson, Jr.,
The American Productivity Center

"Education is a bigger factor in productivity growth than increased capital, economies of scale or better allocation of resources."

David Kearns, Chariman,
Xerox Corporation

A recent survey of manufacturers by the National Association of Accounting found that on average labor represents only 15% of the cost of making a product. Successful cost reduction programs change the way work is done instead of the number of people doing it. Companies such as Digital Equipment, Hallmark, and Pacific Bell have found they can attack their cost containment problems without huge layoffs.

Such companies focus on changing work processes, anticipating how work will change in the future, and redeploying workers. They use a number of human resource development methods, from retraining programs to career development. For example, Pacific Bell, the telephone company, after consolidating 114 service centers into 41, trained surplus workers for other technical and service jobs in the company. Since 1985 it has placed 1100 surplus workers in new positions.

Pacific Northwest Bell, another telephone company, uses a computerized job-skills bank to match managers with openings throughout the company. The program, which includes career counseling for those who want it, helps managers get themselves out of positions that might become redundant.

Hallmark

Hallmark, the greeting card maker, has been spending 35 to 40% of its resources on projects to improve efficiency without layoffs. Since its founding in 1910 it has never imposed a layoff. Instead it involves people at all levels in making the company more competitive. President and CEO Irvine O. Hockaday, Jr. says, ". . . it seems to me that when external realities create changes in the market, which your employees are not responsible for, . . . then your obligation is to find a way to retrain and redeploy those employees."

Two external realities looming large at Hallmark are rapid changes in printing technology that make many jobs unnecessary, and hyperactivity in the greeting card market where small, agile rivals and mercurial customers keep the whole industry on its toes.

Hallmark continually retrains workers in its printing plants for other positions. Camera operators who once made color separations photographically now make them on computer scanners, after training in the necessary new skills. Factory workers, tested for their skill potential and retrained in shorthand and typing, have moved into clerical positions. In two years' time, Hallmark eliminated 1300 positions but without laying off the people who held them.

Hallmark has also been successful in boosting the productivity of its creative workforce. Artists, writers, and marketers work in teams on individual categories of greeting cards. Under the teamwork system, artists are producing 15% more designs than they did two years ago.

Integrating Technology and Human Resources

"If the U.S. is to use the new technology of automation for competitive advantage in manufacturing, it must assure continuous process improvement through organizational learning and experimentation."

Ramchandran Jaikumar,
Harvard Business Review

"Only people give wisdom to machines."

Haruo Shimada,
Japanese labor expert

special report in *Business Week* last spring reported on the "remarkable gains" made by companies that are integrating "multiskilled, highly trained workers and computer-driven technology" through a work-team approach. It cited as successful examples Procter & Gamble, Cummins Engine, GM, GE, Westinghouse, IBM, Xerox, and Polaroid. Units using work teams report productivity improvements of 30 to 50%.

Work teams, trained to a process and not a product, signal the end of the old industrial bureaucracy and the beginning of the new automated democracy. The flexibility of work teams allows a company to put its technology to more efficient use, for example in customizing products, and shortening the time it takes to get a new product to market. Work teams excel at new manufacturing practices such as total quality control, just-in-time inventory, and computer-integrated manufacturing systems.

The service industries—insurance, banking, transportation, retail, and others—face the challenge of building a skill base in their employees for the best use of information technology. Notable for such efforts is AEtna Life and Casualty Company which spends over $1 million annually to develop basic computation and information handling skills of a rapidly growing number of employees who are becoming computer "end users."

Lechmere, Inc., a Boston-based retail chain, has a unique arrangement in which managers and supervisors, with advice from professional trainers, have full responsibility for training the workforce to use technology. Line managers design, deliver, and monitor the effects of training.

Gaines Foods

In existence for nearly 20 years, the Gaines pet food plant is a classic example of integrating technology and people with great success. There are only three levels of management and employees are involved in management decisions that will affect them. Teams of four to 25 people are the basic work unit, each with a team leader. Teams determine the flow of work, assign work, hire and train new members, and take care of supervision and discipline. Team members earn pay increases by learning additional jobs within their team. This human resource strategy of rewarding those who add to their skills has been important in making the Gaines plant one of the most productive of its kind.

Continually Train and Develop

"To succeed in today's competitive world economy, the U.S. must achieve the twin goals of leadership in technological innovation and leadership in efficient production of quality goods and services for the domestic and international marketplace. Key to achievement of these goals is a renewed commitment to a vastly improved education and training system."

James. E. Burke, CEO,
Johnson & Johnson

"Workforce training and constant retraining—and the larger idea of the workforce as an appreciating (or depreciating) package of appropriate (or inappropriate) skills—must climb to the top of the agenda of the individual firm and the nation."

Tom Peters,
Thriving on Chaos

Motorola's Performance in 1987
Sales $6.7 billion: +14% over 1986
Net income $308 million: +59% over 1986
Earnings per share $2.39: +56% over 1986
Source: Motorola

Virtually every examination of America's competitive potential mentions the dramatic change in the skills and competencies required at every level from the "new" leader, who must inspire and anticipate rather than control and react, to the "new" production worker striving to let technology assist rather than replace him. And virtually every prescription for improving national competitiveness calls for more investment in training and education.

- By the year 2000, 75% of of all workers currently employed will need retraining.
- Workers will change jobs five to six times during their careers.
- By the year 2000, an estimated 5 to 15 million manufacturing jobs will require different skills than they do today.

Strategically savvy companies recognize that employee training and development does far more than build skills. It helps transmit the company's mission and values, and it plays a constant role in preparing for and pursuing a new strategic thrust.

Polaroid Corporation has a long-standing commitment to training for strategic goals. "Our goal has been on manufacturing for the past several years, and we feel we've done an excellent job of training in that area," says Polaroid's vice president of corporate quality. "Now it's time to fine-tune our quality training efforts. By moving our training focus back to the design stage, we believe we're really moving closer to the customer." In the next year, design personnel will complete a fifteen-week course in production and process optimization.

Motorola, Inc.

At Motorola, constant renewal is a way of life. It pursues its goal of total customer satisfaction through six initiatives: "six sigma" (99.9997%) quality, total cycle time reduction, product and manufacturing leadership, profit improvement, and cooperation and participation. The training and education function links the key initiatives.

In 1987, Motorola invested $44 million in training. Over 90% of it went into upgrading employees' skill levels in seven key areas: finance, business unit planning, information systems, management, technical (manufacturing, engineering, software), customer and field support, and sales/marketing.

In Motorola's U.S. offices alone, there are at least 30,000 computer terminals, computer control devices, and pieces of word processing equipment, and the company expects that number to double in two to three years. Current and newly-hired employees are trained for competence in: written and spoken English, problem solving, statistical process control, basic mathematics, team processes, and the use of keyboards as job aids. Because Motorola needs more software engineers, it's retraining 150 mechanical and electrical engineers.

Motorola prefers long-term training plans to sporadic training and has developed a series of development guides containing modules on the skills required for engineering, manufacturing, sales, and short cycle manufacturing. In the works is a developmental guide for management, because in the volatile electronics industry the middle manager is especially affected by changes in markets, technology, and the organization. Motorola trains managers in entrepreneurial skills such as risk taking, communicating, acting as change agents, and being accountable leaders.

Game Plan for Action

Recommendations for Employers

A company will be competitive if it can be profitable and attract capital, get and keep customers, and manage change. To be competitive, a company must build and continually develop a flexible, adaptable, skilled, and motivated workforce. The primary tool for this work is a company's training and development capability.

Use training and employee development to achieve strategic business goals.

- The CEO must make training a personal priority for competitiveness.
- Invest 2% of payroll in training and development.
- The highest ranking training executive should be a fully participating member of the corporate leadership team.
- Companies must use training to build and communicate their values and the expectations of their leaders.
- Training and development must be built in at the strategic planning stage, for example, when going after new markets, improving quality, or applying new technology.
- Line managers must be responsible for training and developing their subordinates.

Search out and use the state-of-the-art in training and development.

- Create a corporate environment that sees and uses training as a solution to problems that hold down productivity and restrict competitiveness.
- Insist that managers and trainers search out the best training practices so they know what works, and don't waste resources repeating others' mistakes or reinventing others' successes.
- Build into the jobs of line managers and trainers performance criteria that require them to apply the proven technologies of adult learning, instructional system design, and evaluation.
- Treat the costs of effective and efficient training as investments with the same promise of payoff as research and development investments.

Train for adaptability in the workforce to be able to take advantage of change and manage it for competitive advantage.

- Make employees aware of the need to develop their careers and give them tools and resources for career development.

Recommendations for Educators

The American education system is critical to the long-term competitiveness of the U.S. economy. Employers rely on the education system for the building blocks of a competitive workforce. Employers depend on the education system to prepare job-ready and training-ready, entry-level workers. And employers turn to the education system to purchase many forms of training and retraining. Therefore, we urge educators to:

- Create educator/employer councils to strengthen the link between them and their contribution to the quality of work-related learning.
- Hire better qualified teachers, raise their salaries, and measure the learning outcomes resulting from their work.
- Link the teaching of academic subjects to practical applications.
- In addition to reading, writing, and arithmetic, teach future employees how to make decisions, how to think a job through from start to finish, and how to get work done with and through other people.

Recommendations for the Government

Macroeconomic Policy

Progress in reducing the overall size of the Federal deficit is the critical first step toward freeing up scarce resources for investment in developing human resources. The means by which we reduce the deficit can also help encourage greater investment in American competitiveness. Spending reductions should be targeted on those programs with the least impact on the quality of the nation's human resources. If tax increases become necessary, taxes such as sales and excise taxes that discourage consumption and encourage investment, are preferred.

The Public/Private Link

Public budgets and the tax code largely ignore training at work. Therefore, we urge federal, state, and local governments to:

- Support planning and advisory councils of employers, vocational educators, and public job trainers.
- In providing subsidies for workplace training, give control of resources to the customer — the employer and the individual — as opposed to the public suppliers of education and job training.
- Give incentives to employers, including small and medium-size companies, to invest in training and development.

Budget Policy

Federal, state, and local governments must be major investors in the development of the nation's human resources. Pressure for maintenance spending in public budgets, for example in health care or welfare, must not crowd out increases in developmental spending for education and training. Underinvestment in human resources will result in a workforce unprepared for the demands of a competitive global economy.

- There should be quality preschool education for every disadvantaged three- and four-year-old.
- Make substantial increases in funding for education, training, and employment.
- Expand programs to encourage work rather than welfare.

Public Job Training

Experience with public job training over the past quarter century has taught us that training unrelated to real jobs is minimally useful. Training by itself will not create jobs. Indeed it is jobs that create the need for specific training. For the poor, disadvantaged, dislocated, and unemployed, the best training program is a job.

- Public job training programs should emphasize counseling, job search assistance, and other services that get people into the labor market.
- Subsidized job training should occur on the job or with a particular job in mind.
- Public job trainers should create an accountability system to help employers identify potential for success among entry-level applicants from public education and job training programs.

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